SIN 320

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Suppliers' Information Note

For The BT Network

Serial Digital Video (SDV)

and

Associated AES/EBU Digital Audio Circuit(s)

Service Description

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1 Introduction

This Suppliers Information Note (SIN) describes the BT Serial Digital Video service and provides technical information for terminal equipment manufacturers, suppliers and developers.

2 Service outline

The BT Serial Digital Video (SDV) service provides the transport of Serial Digital Component Video (SDCV) at 270 Mbit/s and generally[i] conforms with ITU-R Recommendations BT.601 [1] and 656 [2]. It can also carry digital audio signals as detailed in section 4 of this document.

> *Studio equipment based on the component ITU-R BT.601 signal standard offers an increase in quality compared with analogue composite PAL systems. These systems are becoming the norm across a spectrum of users from post production to distribution for digital satellite and digital terrestrial. The BT Serial Digital Video, 140 Mbit/s service, therefore provides an increase in quality over the analogue composite PAL service. BT Serial Digital Video allows the transfer between broadcasters and their facility houses of video material in the digital studio format, preserving the quality.*

An SDV vision circuit has up to two nominal 20 kHz stereo circuits associated with it, each of which provides a single 20 kHz AES/EBU[ii] stereo audio interface (these services may be analogue/digitally presented at either or both ends).

The provision of Multiple Analogue Stereo Sound circuits in association with SDV circuits is not available.

Note: A switching service described in SIN 323 [3] provides switching at 140 Mbit/s for those SDV customers who wish to connect with other SDV circuits.

3 Service availability

Serial Digital Video (SDV) is no longer available for new supply,

Serial Digital Video (SDV) Circuits were available on a point to point basis within the UK. This product was available either as a new provision or as a migration from existing Analogue Presented PAL Vision Circuits with associated Sound Circuits.

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[i] Due to the need for compression to package the audio and video within the telecommunications channel there are some limitations of use. Please consult BT Broadcast Services to discuss the suitability for specific applications.

[ii] As note above.

4 Technical specification

4.1 Overview

This product allows Serial Digital Video from studio equipment, which operates at 270 Mbit/s to be transported between locations in the UK using BT's telecommunications infrastructure. This is achieved by the use of compression of the video and audio to fit within a standard 140 Mbit/s digital carrier.

4.2 Video Compression and Limitations

In order to fit the customer's studio signal at 270 Mbit/s into the 140 Mbit/s telecommunications channel the video signal is compressed by about 2:1 using a modified ADPCM algorithm based on ITU-T Recommendation J.80 [4].

The vertical interval is optimised for transmission of data (e.g. teletext) from line 6 (625 operation) to line 22.

4.3 Audio Compression and Limitations

The AES/EBU audio signal is packed into a standard telecoms carrier for transmission. This is achieved by discarding ancillary data; the audio information is not compressed.

4.4 Interface presentation

The following interfaces are provided by the Network Terminating Equipment (NTE):

Interfaces at the NTE	Electrical presentation	Physical presentation
Video	625/50 or 525/60 SDCV to ITU-R BT.601 [1] and 656 [2] at 270 Mbit/s	Customer connection - 75 Ohm BNC Test access - 75 Ohm Musa U link (industry standard coaxial connector)
Audio * AES digital option	AES 3 1992 [5]/EBU tech 3250 [6] Balanced 110 Ohm	Customer connection - solder tags Test access - 2 by 4 mm U links
Audio * analogue option	Stereo circuit - 2 channels Each channel is a balanced pair with Z = 600 Ohm	Customer connection - solder tags Test access - 2 by 4 mm U links

Table 1

* One of these options to be specified when ordering the circuit.

All circuits are presented at the NTE utilising a patch panel. This provides customer cable connections at the rear and removable U links at the front providing test access as described in Table 1.

4.5 Network Terminating Equipment (NTE) Power Requirements

The following power requirement options are available for the NTE:

- For Standard Installations the NTE is mains powered and requires a customer supplied mains power source close to the installation.
- The NTE (power consumption 55 W) may be powered from a customer provided - 48 V d.c. nominal supply. As power supplies can vary slightly in output voltage and characteristics, the NTE will function with customer provided power supplies which conform to the latest issue of British Telecom Network Requirements (BTNR) 2511 [7]. Please consult BT regarding the availability of this option.

Customer provided power supplies for connection to this service shall conform with relevant safety standards.

5 Further information

For further information please go to: http://www.mediaandbroadcast.bt.com/contact-us/

If you have enquiries relating to this document then please email: sinet.helpdesk@bt.com

6 References

[1]	ITU-R Recommendation BT.601	Studio encoding parameters of digital television for standard 4:3 and wide-screen 16:9 aspect ratios.
[2]	ITU-R Recommendation BT.656	Interfaces for digital component video signals in 525-line and 625-line television systems operating at the 4:2:2 level of Recommendation ITU-R BT.601 (Part A).
[3]	SIN 323	Switched Serial Digital Video (SDV) and Associated AES/EBU Digital Audio Circuits - Service Description.
[4]	ITU- T Recommendation J.80	Formerly ITU-R Rec CMTT. 721 Transmission of component-coded digital television signals for contribution-quality applications at bit rates near 140 Mbit/s.
[5]	AES 3 (1992)	Serial transmission format for 2 channel linearly represented digital audio data.
[6]	EBU Tech 3250 (March 1991)	Draft supplement to format for user data channel of the digital audio interface. Appendix 2 to COM T 778/GT G111.
[7]	BTNR 2511	Interface of telecommunications equipment with a nominal 48 V negative d.c. power supply.

7 Glossary

625/50	625 lines 50 fields per second video - the European standard.
525/60	525 lines 60 fields per second video – the American / Japanese standard
AES	Audio Engineering Society.
BTNR	British Telecom Network Requirements.
CCIR	International Consultative Committee for Radio. Now known as ITU-R.
EBU	European Broadcasting Union.
ITU-R	International Telecommunications Union - Radio standardisation section (formerly CCIR).
Musa	Industry standard broadcast coaxial connector.
NTE	Network Terminating Equipment.
PAL	Phase Alternate Line.
SDCV	Serial Digital Component Video.
SIN	Suppliers' Information Note.

8 History

Issue 1	30 November 1998	First Issued
Issue 1.1	May 2001	Editorial Changes
Issue 1.2	October 2003	Audio updated to reflect addition of 2 AES option / References updated / Section 5 'Further information' details updated / Approval Requirements statement removed, information available via SINet Useful Contacts page / 525 capability clarified / power option statement revised.
Issue 1.3	May 2008	Inserted new references for further information.
Issue 1.4	1 June 2012	Service Availability amended
Issue 1.5	July 2015	Change SINet site references from http://www.sinet.bt.com to http://www.btplc.com/sinet/ Change to contact for additional informaiton
Issue 1.6	July 2020	Change SINet site references from http://www.btplc.com/sinet/ to https://www.bt.com/about/sinet

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